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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/484,437	01/18/2000	Tongbi Jiang	M4065.0226/P226	9698

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EXAMINER

MITCHELL, JAMES M

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 05/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/484,437

Applicant(s)

JIANG, TONGBI

Examiner

James Mitchell

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20,31 and 32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20,31 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the RCE filed May 2, 2002.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 2, 2002 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-20, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (APA) in view of Dershem et. al. (U.S. 6,034,194).
5. The admitted prior art (Applicant's Detailed Description, Paragraph 1; Fig 1) discloses a solder mask (18) and die (12), contacts (22) on solder mask being wire bonded (28; via wire) to contacts (20) on said die, and an adhesive (14) affixing said die to said solder mask.

6. APA does not disclose the particular claimed adhesive that remains voidless after outgassing from a solder mask.

7. However, Dershem utilizes an adhesive comprising Bismaleimide (BMI) that has a glassy temperature between about 5 and about 20 degree Celsius (inherent property of BMI material), that is free from voiding (Column 11, Line 53-54) with peroxide initiators that react at temperatures below 100 degrees Celsius (Column 5, Lines 50-56), wherein the adhesive is curable at a temperature below about 100 degree Celsius ("less than about 200° C"; Column 7, Lines 1-3) and at a temperature between about 20 and about 50 degrees Celsius ("less than about 200° C") higher than a glassy temperature of said adhesive layer.

8. It would have been obvious to one of ordinary skill in the art to form the adhesive of the admitted prior art (APA) with a BMI material in order to provide good adhesion to the device and the attached substrate as taught by Dershem (abstract).

9. Furthermore in regard to claims 2-6,13-15, 31 and 32, although Dershem and the admitted prior art do not appear to explicitly teach the process limitations of the adhesive being "cured" at certain temperatures, the product of Dershem and the admitted prior art inherently possess the structural characteristics imparted by the process limitation. See *In re Fitzgerald, Sanders, and Bagheri*, 205 USPQ 594 (CCPA 1980).

10. In regards to claims 11 and 20, the adhesive as admitted by applicant that produces outgassing that contaminate the contacts (Detailed Description Paragraph 2) can be made impervious to the effects of outgassing by subjecting the adhesive to a low

temperature cure "for example" below 100° C for a period to solidify the adhesive layer (Detailed Description Paragraph 3).

11. Indeed the prior art adhesive is cured at a low temperature ("less than 200° C) and therefore impervious to outgassing, which results in contacts free from contaminants.

12. Further, the modified structure of the admitted prior art and Dershem form the same structure as that which is claimed by applicant, as such the prior possesses the same characteristics imparted by that structure. Therefore, if applicant's contacts are substantially free of contaminants from said adhesive layer, so to is the prior art.

Response to Arguments

13. Applicant's arguments with respect to claims 1-20, 31 and 32 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3230 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


jmm
May 13, 2002



**DAVID E. GRAYBILL
PRIMARY EXAMINER**